Capturing Benefits from Public Policy Initiatives in India: Inter-Group Differences in Access to and Usage of the Rashtriya Swasthya Bima Yojana Health Insurance Cards

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Abstract

The *Rashtriya Swasthya Bima Yojana* (RSBY, literally "National Health Insurance Programme"), is a health insurance scheme run by the Indian government for India's poorest households. The beneficiaries from RSBY belong to different caste and religious groups. In this context, the paper asks two questions. The first is a general question that applies all RSBY card holders – does the possession of a RSBY card benefit the holder in a *non-health* sphere? The second question is do persons belonging to the dominant groups in Indian society succeed in capturing a disproportionate number of these cards? We attempt to answer these two questions by using a unique survey of 1,500 RSBY card holding households conducted by the authors in two Indian states, Uttar Pradesh and Maharashtra. We conclude that the RSBY poses two barriers: the barriers associated with getting a card and the barriers associated with using a card even though one might be in possession of one. In Maharashtra, those higher up the income ladder, and those in higher social groups, were significantly more likely to have a card than those on the lowest rung economically and socially. The same is true of usage. Having got a card, it was the better off sections of card holders who were more likely to use them.

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1. Introduction

The *Rashtriya Swasthya Bima Yojana* (RSBY, literally "National Health Insurance Programme"), is a health insurance scheme run by the Indian government for India's poorest households and has won plaudits from the World Bank, the UN and the ILO as one of the world's best health insurance schemes. Under RSBY, every "below poverty line" (BPL) family, holding a yellow ration card[1], pays ₹30 (less than US$0.7) registration fee for a biometric-enabled smart card containing their fingerprints and photographs. This enables them to receive inpatient medical care of up to ₹30,000 (approximately US$670) per family, per year, in any of the empanelled hospitals. Pre-existing illnesses are covered from day one, for the household head, spouse and up to three dependent children or parents. The scheme, which started enrolling on April 1, 2008, has been implemented in 25 states of India with, to date, a total enrolment of 33 million families from whom 4.3 million persons have received treatment under the scheme.

About three-fourths of funding for RSBY is provided by the central government and the remainder by the appropriate state government. The scheme is aimed at BPL workers in the unorganised sector and their families. It also covers all *beedi*[2] workers registered under the *Beedi* Workers Welfare Fund and issued identity cards by the Welfare Commissioner Ministry of Labour & employment/State Government, all domestic workers age 18 years and above, and all street vendors with a license from Municipal Corporation or Local Bodies.

A crucial requirement for a household to get a RBSY card is that it should be a BPL household. On the basis of a "BPL census" conducted by the Government of India, each household is assigned a poverty score based on its profile. [3] Based on these scores, a government-determined cut off point (termed the *BPL* cut off line) is used to separate BPL from APL (above poverty line) households. The last BPL survey was done in 2002 and scores based on this were used for RSBY registration. All the households listed in the BPL category were informal sector workers since any household that had *at least one* regular salaried, or formal sector, worker was considered to be an APL household.

The beneficiaries from RSBY belong to different caste and religious groups. In terms of caste, the broad division is between upper-caste Hindus, Hindus from the Other Backward Classes (OBC), and the Scheduled Castes (SC), the latter comprising the formerly 'untouchable' castes. In terms of religion, the broad distinction is between Hindus and Muslims. In this context, the paper asks two questions. The first is a general question that applies all RSBY card holders – does the possession of a RSBY card benefit the holder in a *non-health* sphere by, say, improving his/her capacity to function better by virtue of the fact that anxiety with respect to health problems has been alleviated?[4] The second question is a group-specific one. Given that the possession of a RSBY card confers health-related benefits[5] – and may even confer non-health elated benefits – do persons belonging to the dominant groups in Indian society succeed in capturing a disproportionate number of these cards?

We attempt to answer these two questions by using a unique survey of RSBY card holders conducted by the authors. This survey of 1,500 BPL households in two Indian states, Uttar Pradesh

[1] BPL families are entitled to a yellow ration card in contrast to "above poverty line" (APL) families who are only entitled to a white card. The yellow card holders are entitled to a higher ration than the white card holders.
[2] An indigenous "cigarette" made as tobacco wrapped in a leaf.
[3] See Appendix for details of BPL calculations.
[4] For example, there might be a greater willingness to make productive investments based on a greater sense of health security.
[5] Compared to a BPL family not holding a RSBY card, a BPL family holding a RBSY card is better off if there happens to be an illness of (comparable gravity) in both families, if only because it is required to spend less on that episode of ill-health

(UP) and Maharashtra, with 750 respondents from each state, is described in some detail in section 3. Before that, section 2 informs the reader about how RSBY works

2. How RSBY Works

The implementation of RSBY is based on the public- private partnership model. After a competitive bidding process a public or private insurance company is given a license to provide health insurance subject to certain conditions. At the time of bidding, the insurance companies have to provide a list of empanelled hospitals which are prepared to be part of the RSBY scheme for cashless treatment facilities. Both public and private hospitals can be included in the list of empanelled hospitals which must meet certain basic minimum requirements. Under the scheme, hospitals which specialise in the treatment of various diseases are empanelled so that the beneficiaries can get access to the health care appropriate to their illness.

The insurer must also agree to engage intermediaries with local presence (such as NGOs) in order to provide grassroots outreach and to assist members in utilising RSBY services after enrolment. The role of these local intermediaries is very important in the success of the RSBY scheme. They have to inform local BPL households about the dates and venues for registration under RSBY and the usefulness of the scheme. The selected insurance companies hires Third Party Administrators (TPA) for enrolling beneficiaries and each state government provides an electronic list of BPL households to the insurance companies.

The TPA plays an important role in the enrolment process. A list of households eligible for RSBY benefits is posted on the village *panchayat* notice board and other important public places a few days before the enrolment date. The TPA also informs villagers about the date and place of enrolment. [6] After enrolment, a biometric smart card, carrying a photograph of the head of the household, with biometric information (such as finger prints) of all five members of a beneficiary's household, is printed and given to the beneficiary against a payment of ₹30. This smart card then allows cashless transactions for inpatient treatment expenses at empanelled hospitals, a list of these hospitals being also provided to the card holder. Only those persons whose biometric information is stored on the smart card can avail of health care under RSBY.

Each empanelled hospital has a RSBY help desk with a card reader machine which is used to swipe the card so that all health costs related to the card holder's treatment are debited to it. The empanelled hospitals send details of the expenses to the insurance agencies and money is transferred to the account of the empanelled hospitals. It is also mandatory that the persons obtaining treatment through RSBY are given details of the expenses deducted from their smart cards. The entire transaction is cashless and the patients seeking health care through RSBY need not to pay any cost for their treatment.

All the transactions under the RSBY are monitored by the central ministry. After enrolment, information about all registered beneficiaries is sent to the Ministry of Labour and Employment and the RSBY desks of all empanelled hospitals in the country are linked to the central server of the Ministry. To help address grievances under the scheme, 'redressal committees' have been formed at the central, state and district level to manage the complaints of beneficiaries and stakeholders.

3. The Survey

The Survey which provided the data for the study was located in two states: Uttar Pradesh (UP) and Maharashtra. The choice of states was based on three criteria: (i) completion of maximum number of years of RSBY; (ii) compared to the all-India average, a greater concentration of SC

[6] Rajasekhar et.al.(2011) ' Implementing Health Insurance: The rollout of *Rashtriya Swasthya Bima Yojana* in Karnataka', *Economic and Political Weekly*, May,2011, Vol. XLVI, No 20 p-57

persons and Muslim in the population; (iii) compared to the all-India average, a larger enrolment of households in the RSBY scheme. Table 1 compares the 'RSBY performance' of UP and Maharashtra with that of India in its entirety.

Table 1: Percentage distribution of population by socio-religious groups in study state

S.N	State/Sector	SC	ST	Others	Muslim
1	India (Total)	16.2	8.2	75.6	13.4
2	India (Rural)	17.9	10.4	71.7	12.0
5	Uttar Pradesh (Total)	21.1	0.1	78.8	18.5
6	Uttar Pradesh (Rural)	23.4	0.1	76.5	14.9
7	Maharashtra (Total)	10.2	8.9	80.9	10.6
8	Maharashtra (Rural)	10.9	13.4	75.7	5.5

Source: Census of India, 2001, Registrar General of India

Similar considerations prevailed with the choice of districts to be sampled within each state: Moradabad district in UP and Aurangabad district in Maharashtra. Moradabad was selected for this study because it had a higher proportion of Muslims than its parent state while, in Aurangabad, the proportions of both SC persons and Muslims were higher than the State averages (Table 2). The details of the population in the two districts are shown in Table 3 while the geographical locations of the two districts, in the context of their parent states, are shown in the two maps below.

Table 2: State and district selected on the basis of selection criteria

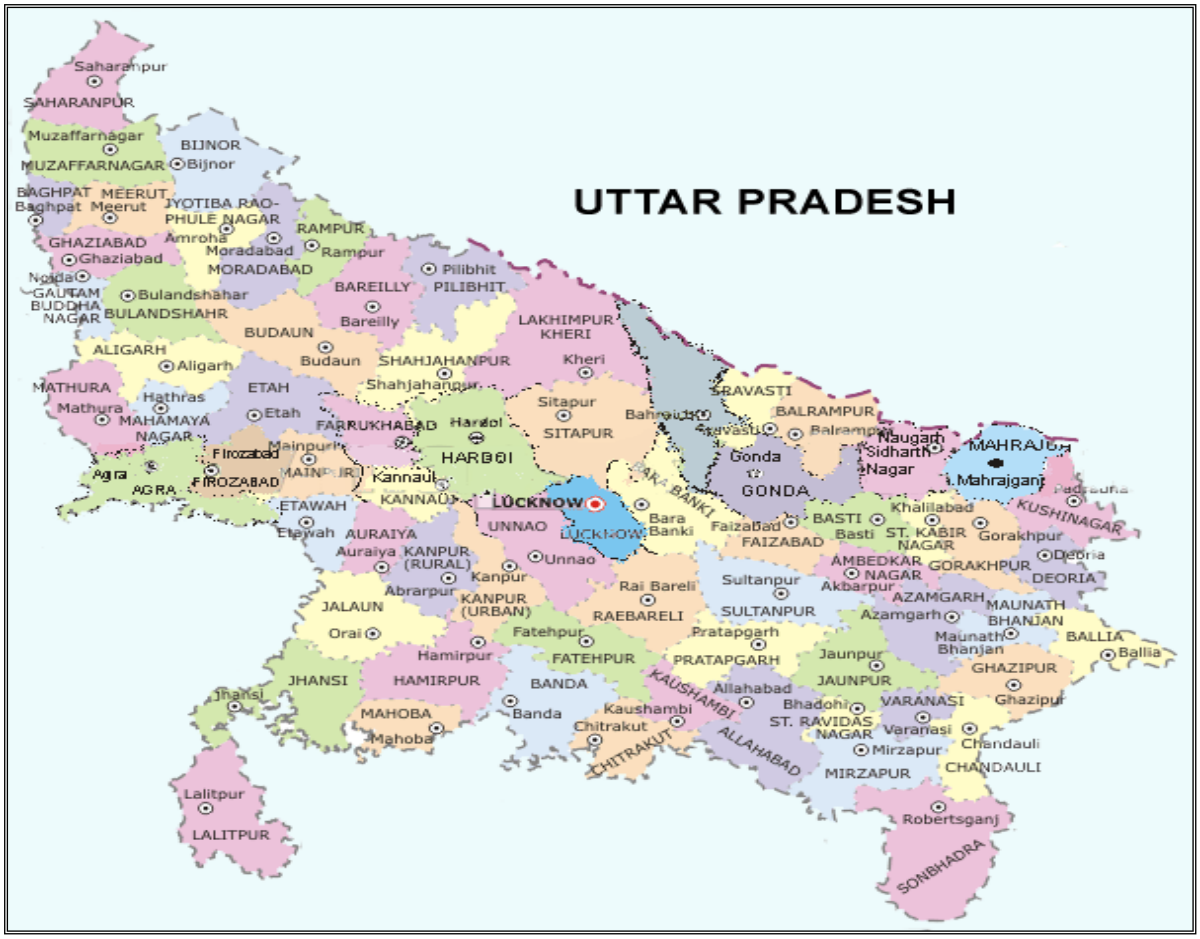
Study Area	No. of districts with RSBY	Number of Years	Proportion of population to the state average			No. of BPL families covered	Hospitals Empanelled	
			SC	ST	Muslim		Govt.	Private
State: Uttar-Pradesh	All 70 districts	3	21		19	4024719	1113	679
District: Moradabad		2	17		49	41643	48	8
State: Maharashtra	All 35 Districts	3	10	9	11	2172918	1007	8
District: Aurangabad		2	13	4	20	81835	38	0

Source: Census of India, 2001, Registrar General of India

Table 3: Social composition of the populations of Moradabad and Aurangabad Districts

Social Composition	**Moradabad**	**Aurangabad**
Households	573,100	549,900
Population	3,811,000	2,897,000
SC population	604,300 (15.9)	376,200 (13.0)
Muslim population	1,735,400 (49.5)	1,004,00 (3.5)
Non-SC/non-Muslim population	2,075,600 (54.5)	5,695,00 (19.7)

Source: Census of India, 2001, Registrar General of India
Note: Figures in bracket is percentage distribution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Amroha
RAMPUR
Moradabad
Rampur
GHAZIABAD
Ghaziabad
MORADABAD
Noida
GAUTAM BUDDHA NAGAR
Bulandshahar
BULANDSHAHR
BAREILLY
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BUDAUN
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SHAHJAHANPUR
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MATHURA
Mathura
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ETAH
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MAHAMAYA NAGAR
FARRUKHABAD
Sitapur
SITAPUR
SRAVASTI
BALRAMPUR
Balrampur
Gonda
GONDA
Naugarh Sidharth Nagar
MAHRAJGANJ
Mahrajganj
Firozabad
FIROZABAD
Agra
AGRA
Mainpuri
Kannauj
HARDOI
ETAWAH
Etawah
KANNAUJ
LUCKNOW
UNNAO
Bara Banki
BARA BANKI
Faizabad
FAIZABAD
BASTI
Basti
Khalilabad
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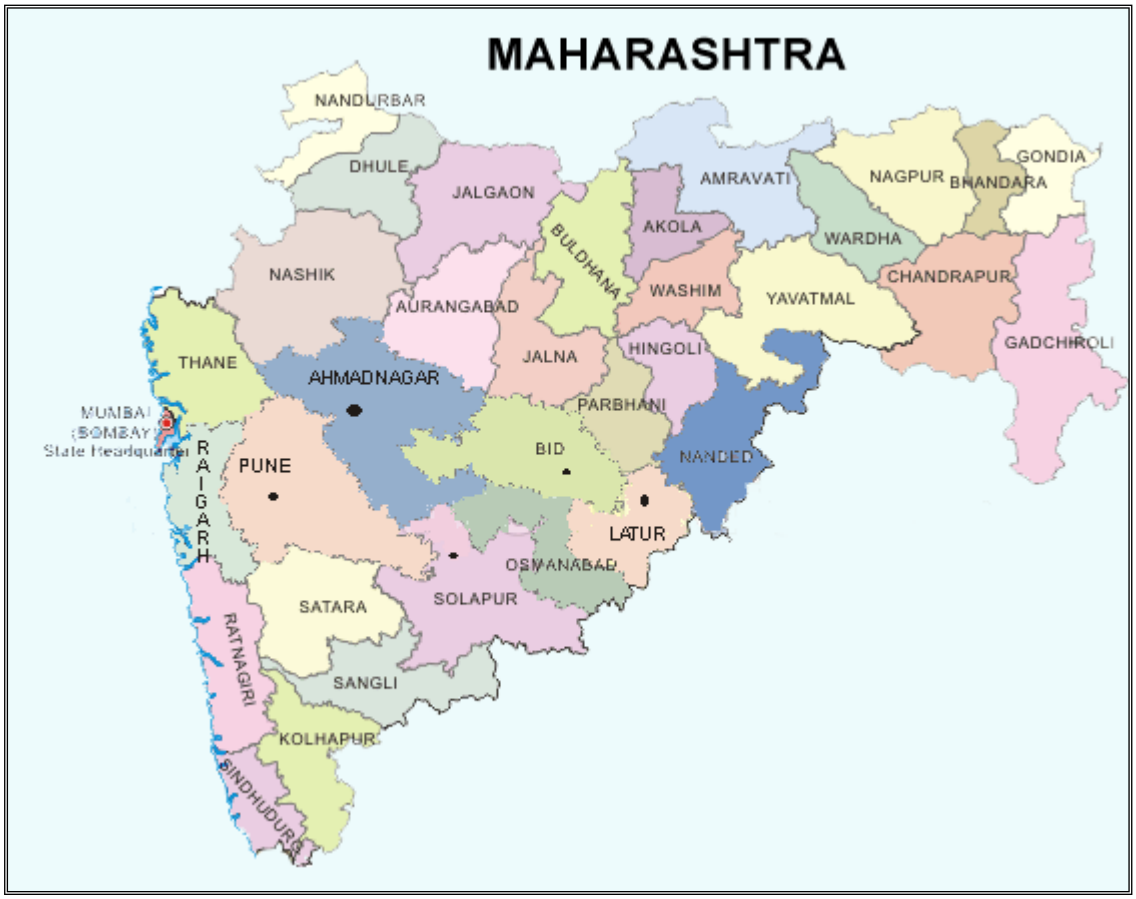
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WASHIM
YAVATMAL
CHANDRAPUR
AURANGABAD
JALNA
HINGOLI
GADCHIROLI
THANE
AHMADNAGAR
PARBHANI
MUMBAI (BOMBAY) State Headquarter
RAIGARH
PUNE
BID
NANDED
LATUR
OSMANABAD
SATARA
SOLAPUR
RATNAGIRI
SANGLI
KOLHAPUR
SINDHUDURG

Sample Selection and Sampling Methodology

Since the focus of this study is Muslims and persons from the SC (that is, 'socially excluded' or 'marginalised' groups), we were careful to choose from our respondents an adequate number of such persons from both the 'treated' and 'control' groups. The 'treated' group comprised those that had RSBY cards where some of these card holders were from marginalised groups and the others from non-marginalised groups. The 'control' group comprised those that *did not* have RSBY cards where, again, some of these were from marginalised groups and the others from non-marginalised groups.

A total of 1,500 sample households were surveyed, with 750 households from each of the states of UP and Maharashtra. Out of this total, 30% were non-beneficiary (or 'control group') households and the remaining households were beneficiary (or 'treated group') households. From the 450 non-beneficiary households, two-thirds (300 households) were from 'marginalised' groups and the remainder from non-marginalised households. From the 1,050 beneficiary households, two-thirds (600 households) were from 'marginalised' groups and the remainder (450 households) were from 'non-marginalised' households. The distribution of the entire sample is shown in Table 4 below and the sampling methodology is detailed in Table 5.

Table 4: The Distribution of Households in the Survey

	Moradabad, Uttar Pradesh	Aurangabad, Maharashtra	Total
Control group I (Non-beneficiaries from non-marginalised group) @10%	75	75	150
Control group II (Non-beneficiaries from marginalised group) @20%	150	150	300
Treatment group I (Beneficiaries from non-marginalised group) @30%	225	225	450
Treatment group II (Beneficiaries from marginalized group) @40%	300	300	600
Total Households	750	750	1500

Table 5: The sampling Procedure

Methodology	**Details**	**Respondents**
Household Survey	A detailed household schedule was canvassed among the sample households. The head or adult member of the household was the key respondent. However, for sections relating to maternity eligible women would be the respondents.	Selected 1500 BPL household (750 from each district)
Focus Group Discussion	FGDs were conducted to find out the collective information from beneficiary of RSBY.	Members of homogeneous socially excluded group
Key Informant interviews	Interview with local and central government helped to contextualize issue that affect the lives of socially excluded beneficiary households , challenges and opportunities for supporting social inclusion and objective and goals of social interventions such as RSBY.	Head of RSBY Beneficiary household, local and central government officials working in social interventions programs

4. The Data

As detailed earlier, the data for the analysis were obtained from a survey of 1,500 BPL individuals in two Indian states, Maharashtra and Uttar Pradesh with 750 respondents from each state. The respondents were divided into three groups

1. Those that did not have a RSBY card (hereafter, group 1).There were 450 households in this group comprising 30% of the sample of 1,500 households.
2. Those that had a RSBY card but had not used it (hereafter, group 2). There were 789 households in this group comprising 53% of the sample of 1,500 households.
3. Those that had a RSBY card and had used it (hereafter, group 3). There were 261 households in this group comprising 17% of the sample of 1,500 households.

The survey also provided information on the attributes of the respondents and Table 6 shows the average values of some of these characteristics classified according to card status. The main features of the table, in terms of differences between the households of different card status, is that group 3 households had older household heads, a higher income, higher consumption expenditure (both in total and per capita), higher saving, and larger per capita land holding compared to group 1 or group 2 households.

Testing for differences in these variables between the groups, a pairwise comparison suggested that the differences between group 3 and 1, and between groups 3 and 2, in respect of **age of household head**, **household income**, **and monthly household per capita consumption expenditure** were significantly differently from zero[7] but differences in **monthly household consumption expenditure, household saving, and size of per person land holding** were not significantly different from zero.

Table 6: Individual Attributes by RSBY Card Status

	Household does not have RSBY card	Household has RSBY card but has not used it	Household has RSBY card and has used it
Age of Household Head	45.8	46.2	47.9
Household size	5.5	5.4	5.3
Number of children in household	1.8	1.9	1.8
Number of Males in household	2.9	2.9	2.8
Number of females in household	2.6	2.5	2.5
Average household monthly income	5,547	5,569	6,024
Average household monthly consumption expenditure	2,708	2,718	2,891
Average household monthly saving	2,839	2,851	3,133
Average household monthly per capita consumption expenditure	516	522	567
Household land per person	0.39	0.34	0.43

Using the survey data, we defined three mutually exclusive social groups: (i) Scheduled caste (SC) households (447/1,500 households); (ii) non-SC Hindu households (593/1,500 households), hereafter Hindus; and (iii) non-Hindu and non-SC households (460/1,500 households), hereafter non-Hindus. Table 7 shows that of the 447 SC households, 33% did not have a card (group 1), 48% had a card but had not used it (group 2); and 19% had a card and had used it (group 3). The proportions for non-Hindu households were comparable. However, compared to SC and non-Hindu households,

[7] All significance levels quoted in this paper are at the 5% level.

Hindu households had a lower presence in group 1 (25%), a higher presence in group 2 (59%), and a lower presence in group 3 (16%). In summary, compared to SC and non-Hindu households, Hindu households were more inclined to take out a RSBY card but less inclined to use it.

Table 7: RSBY Card status by social group

	Household does not have RSBY card	Household has RSBY card but has not used it	Household has RSBY card and has used it	Total
Scheduled Castes	149 (33%) [33%]	215 (48%) [27%]	83 (19%) [32%]	447 (100%)
Non-SC Hindus	150 (25%) [33%]	348 (59%) [44%]	95 (16%) [36%]	593 (100%)
Non-Hindus	151 (33%) [33%]	226 (49%) [29%]	83 (18%) [32%]	460 (100%)
Total	450	789	261	1,500

Figures in () represent row proportions and figures in [] represent column proportions

As Table 8, below, shows, there was no difference in the proportionate presence of illiterate and literate households in group 1: approximately 30% from each group did not have a card. Literacy did, however, have an effect on usage: 20% of literates, compared to 16% of illiterates, were in group 3.

Table 8: RSBY Card status by Illiteracy/literacy

	Household does not have RSBY card	Household has RSBY card but has not used it	Household has RSBY card and has used it	Total
Illiterate	256 (29%)	477 (55%)	138 (16%)	871 (100%)
Literate	194 (31%)	312 (50%)	123 (20%)	629 (100%)
Total	450	789	261	1,500

Tables 9, 10, and 11 show the proportions in the different status categories by housing and related conditions. Table 9 shows that while the proportions not having a RSBY card were roughly similar between households living in *pucca* (made of brick or cement) and *kutcha* (made of mud or wood) houses, households living in *pucca* houses were more likely to use their cards (19%) compared to households in *kutcha* houses (12%). Similarly, Table 10 shows that while the proportions not having a RSBY card were roughly similar between households whose source of water was a tap or a tube well/hand pump, households whose source of water was the tap were more likely to use their cards (20%) compared to households whose source of water was the tube well/hand pump (15%). Lastly, Table 11 shows that households whose source of power was electricity were more likely to use their RSBY cards compared to households whose source of power was not electricity.

Table 9: RSBY Card Status by Housing Conditions

	Household does not have RSBY card	Household has RSBY card but has not used it	Household has RSBY card and has used it	Total
Pucca	349 (30%)	600 (51%)	220 (19%)	1,169 (100%)
Kutcha	101 (31%)	189 (57%)	41 (12%)	331 (100%)
Total	450	789	261	1,500

Table 10: RSBY Card Status by Households' Source of Water

	Household does not have RSBY card	Household has RSBY card but has not used it	Household has RSBY card and has used it	Total
Tap	187	319	126	632
	(30%)	(50%)	(20%)	(100%)
Tube well/hand pump	234	427	114	775
	(30%)	(55%)	(15%)	(100%)
Well	27	40	21	88
	(31%)	(45%)	(24%)	(100%)
Pond/River	2	3	0	5
	(40%)	(60%)	(0%)	(100%)
Total	450	789	261	1,500

Table 11: RSBY Card Status by Households' Source of Power

	Household does not have RSBY card	Household has RSBY card but has not used it	Household has RSBY card and has used it	Total
Electricity	234	376	160	770
	(30%)	(49%)	(21%)	(100%)
Kerosene	206	386	96	688
	(30%)	(56%)	(14%)	(100%)
Other	10	27	5	42
	(24%)	(64%)	(12%)	(100%)
Total	450	789	261	1,500

5. Econometric Estimation

A question that requires an answer is why the proportion of households using their RSBY cards – and, by corollary, the proportion of households not using their RSBY cards – varies according to household characteristic. One reason may be that the non-claimants do not need to claim – after all, if no one in the household is ill there is no occasion to claim. The other reason might be difficulty in claiming so that having got a card there is, for some households, a further barrier (perhaps involving bureaucratic form filling) to using the card.

It is hard to believe that the incidence of household illness is different between SC households and Hindu households (Table 7); or between illiterate and literate households (Table 8); or between households living in *pucca* houses and households living in *kutcha* houses (Table 9); or between households whose source of water is the tap and households whose source of water is the tube well/hand pump (Table 10); or between households whose source of power is electricity and households whose source of power is kerosene (Table 11). Indeed, it is much more plausible to suppose the incidence of household illness would be greater among the second, compared to the first, type of household. An inexorable conclusion would be that the reason that households with less favorable attributes, notwithstanding having a RSBY card, do not claim to the same degree as better off and more privileged households is that they face relatively higher barriers to claiming.

A second question is why certain households did not take out a RSBY card in spite of the fact that all of them were BPL households and, by definition, were eligible for a card. Our hypothesis is that this has to with area effects rather than with household choice. Households cannot take out RSBY cards if the facilities for doing so do not exist.

In line with the first hypotheses namely that "better off" households might have an advantage in terms of claiming benefits on RSBY, we estimated an equation in which the dependent variable took the value 1 if a household *had a card and claimed*, 0 if it *had a card and did not claim*. Table 12 shows the results from estimating such an equation: the results are shown in the form of odds ratios and in terms of marginal probabilities. The latter show how the probability of the event (in this case

claiming benefits) would change for a unit change in the determining variable, the values of the other variables held constant.[8]

Table 12: Logit Estimates of the Likelihood of Card Holders Claiming on RSBY*

The dependent variable takes the value 1 if a household has a card and claims, 0 if it has a card and does not claim								
	Odds Ratio	Standard Error	Z value	Prob> |z|	Marginal Probability	Standard Error	Z value	Prob> |z|
Household monthly per capita consumption expenditure	0.01	0.00	3.00	0.00	0.01	0.00	3.00	0.00
Top income quintile	0.05	0.05	1.11	0.27	0.05	0.05	1.11	0.27
4th income quintile	0.12	0.04	2.70	0.01	0.12	0.04	2.70	0.01
3rd income quintile	0.12	0.04	2.95	0.00	0.12	0.04	2.95	0.00
2nd income quintile***	0.06	0.04	1.51	0.13	0.06	0.04	1.51	0.13
Age of household head	0.01	0.01	1.75	0.08	0.01	0.01	1.75	0.08
Scheduled Caste household	0.01	0.03	0.19	0.85	0.01	0.03	0.19	0.85
Hindu household**	-0.08	0.03	-2.52	0.01	-0.08	0.03	-2.52	0.01
Pucca house	0.09	0.03	2.69	0.01	0.09	0.03	2.69	0.01
State	0.11	0.03	3.96	0.00	0.11	0.03	3.96	0.00
Tehsil	-0.05	0.03	-1.63	0.10	-0.05	0.03	-1.63	0.10

* 1,050 observations. **Reference category is other religions. ***Reference category is lowest income quintile

The results shown in Table 12 go a long way towards supporting our hypothesis that being better off leads to a higher claim propensity. Higher monthly per capita consumption expenditure by a household, higher household income, living in a *pucca* house were all significantly associated with a higher probability of claiming RSBY benefits from the set of households holding such cards. Living in Maharashtra, compared to living in UP, significantly raised the proportion of card holders who claimed benefits, from 18% in UP to 31% in Maharashtra. A surprising feature of the result was that Hindu household card holders were significantly less likely to claim than SC and non-Hindu households. It may be that RSBY restricts the hospitals and doctors from which card holders can receive treatment and this restriction may not accord with Hindu tastes.

Tables 13 and 14 show the results for estimating the "card take up" equation in which the dependent variable takes the value 1 if the household has a RSBY card (regardless of whether it used it or not) and the value 0 if the household does not have a RSBY card. The equation was estimated separately for Uttar Pradesh (UP) and Maharashtra. The UP results (Table 13) showed that the significant effects on the probability of having a card were: (i) the location of the household in terms of the village's geography; household's in the corner and on the periphery were significantly less likely to have a card compared to households living in the center of the village and (ii) the *gram panchayat* with which the household was associated.

The results for Maharashtra (Table 14) were very different from those for UP (Table 13). Now area effects were much less important compared to the ability of better off and more powerful households to obtain RSBY cards. Hindu households were significantly more likely to have a RSBY card than SC or "other religion" households. Households whose source of power was electricity were significantly more likely to have a card than households whose source of power was kerosene. Households in the upper strata of the income distribution were significantly more likely to have a card than households in the lowest income quintile. All in all, the allocation of RSBY cards was significantly skewed towards relatively prosperous households.

[8] In this case to the sample mean values of the variables

Table 13: Logit Estimates of the Likelihood of Being a RSBY Card Holder: Uttar Pradesh*

The dependent variable takes the value 1 if a household has a card, 0 if it does not have a card								
	Odds Ratio	Standard Error	Z value	Prob> |z|	Marginal Probability	Standard Error	Z value	Prob> |z|
Tehsil	2.32	0.44	4.46	0.00	0.16	0.03	4.67	0.00
Location outside village	0.50	0.14	-2.51	0.01	-0.13	0.05	-2.55	0.01
Location at corner of village**	0.57	0.11	-2.89	0.00	-0.11	0.04	-2.94	0.00
Gram Panchayat 1	4.80	1.87	4.02	0.00	0.30	0.07	4.17	0.00
Gram Panchayat 2	3.05	1.05	3.24	0.00	0.21	0.06	3.32	0.00
Gram Panchayat 3	2.04	0.73	2.00	0.05	0.14	0.07	2.01	0.04
Gram Panchayat 4	3.68	1.34	3.57	0.00	0.25	0.07	3.68	0.00
Gram Panchayat 5	2.22	0.79	2.26	0.02	0.15	0.07	2.28	0.02
Gram Panchayat 6	3.36	1.26	3.24	0.00	0.23	0.07	3.31	0.00
*Gram Panchayat 7***	4.19	2.05	2.94	0.00	0.27	0.09	2.99	0.00

* 742 observations ** Reference category is 'inside village'. *** The reference category was *Gram Panchayat 8.*

Table 14: Logit Estimates of the Likelihood of Being a RSBY Card Holder: Maharashtra*

The dependent variable takes the value 1 if a household has a card, 0 if it does not have a card								
	Odds Ratio	Standard Error	Z value	Prob> |z|	Marginal Probability	Standard Error	Z value	Prob> |z|
Tehsil	0.70	0.12	-2.13	0.03	-0.07	0.03	-2.15	0.03
Scheduled Caste household	0.98	0.21	-0.09	0.93	0.00	0.04	-0.09	0.93
Hindu household**	1.60	0.31	2.40	0.02	0.10	0.04	2.44	0.02
Age of household head	1.05	0.04	1.34	0.18	0.01	0.01	1.35	0.18
Source of power is electricity	1.47	0.31	1.85	0.07	0.08	0.04	1.86	0.06
Top income quintile	1.23	0.32	0.80	0.43	0.04	0.05	0.80	0.43
4th income quintile	1.77	0.49	2.08	0.04	0.12	0.06	2.10	0.04
3rd income quintile	1.47	0.34	1.66	0.10	0.08	0.05	1.67	0.09
2nd income quintile***	1.59	0.39	1.88	0.06	0.10	0.05	1.89	0.06

* 750 observations. **Reference category is other religions. ***Reference category is lowest income quintile

6. Treatment Effects

An important issue in policy analysis is to assess (measure) the outcome or effect of a policy intervention or treatment which some members of the public receive but others do not. The heart of the analysis lies in constructing in two sets of counterfactuals: (i) What would be the outcome for an individual who received the treatment *have been if he/she did not get the treatment?* (ii) What would be the outcome for an individual who did not receive the treatment *have been if he/she did get the treatment*? The key to quantifying treatment effects lies in answering these two questions.

More formally the treatment is represented by θ, so that $\theta=1$ represents receiving the treatment and $\theta=0$ represents not receiving the treatment. Consider an individual *i (i=1…N)* and Y_θ

represent his outcome. Then if individual *i* did receive treatment Y_{i1} represents his *observed* outcome and Y_{io} represents his *counterfactual* outcome; conversely, if individual *i* did not receive treatment Y_{io} represents his *observed* outcome and Y_{i1} represents his *counterfactual* outcome. So, for each individual *i (i=1…N)* we have two outcomes - Y_{i1} and Y_{i0} - where one is an observed outcome and the other is a counterfactual outcome. Consequently, the **average treatment effect** (ATE) is defined as (dropping the subscript *i*):

$$ATE = E(Y_1 - Y_0) \tag{1}$$

which is the *expected* effect of the treatment on a *randomly drawn person* from the population of persons receiving and not receiving the treatment.[9]

A second quantity of interest which receives attention is the **average treatment effect on the treated** (ATET) defined as:

$$ATET = E(Y_1 - Y_0 \mid \theta = 1) \tag{2}$$

The concepts of ATE and ATET can be expanded by conditioning on covariates. If **x** is a vector of covariates, then $ATE = E(Y_1 - Y_0 \mid \mathbf{x})$ and $ATET = E(Y_1 - Y_0 \mid \mathbf{x}, \theta = 1)$. So, the question is: how to estimate *ATE* and *ATET* when we have a sample on the *Y* and θ (in other words, we can observe the outcome for each person and we know whether or not he/she received treatment) and observations on some covariates? The difficulty is that for any individual we observe Y_1 or Y_0 *but not both*. The observed outcome, Y is:

$$Y = (1-\theta)Y_0 + \theta Y_1 = Y_0 + \theta(Y_1 - Y_0) \tag{3}$$

A strong assumption is that θ is independent of Y_1 and Y_0 as would happen with random assignment. However, when assignment is not random, so that there is **self-selection** into treatment, a weaker assumption is required. The **conditional independence (CI)** assumption says that *after conditioning on covariates*, the potential outcomes are conditionally independent of the treatment.[10] The **overlap** assumption says that each individual has a positive probability of being included in the treatment.[11] The **independent and identically distributed** (**iid**) assumption says the treatment affects only the concerned household and does not affect other households.

With this background, the estimators proposed in treatment effects literature fall into the following categories:

1. Estimators based on a model for the outcome variable (Regression Analysis, RA).
2. Estimators based on a model for treatment assignment. (Inverse probability weighted (IPW)).
3. Estimators based on models for both outcome and treatment variables (Augmented Inverse Probability Weighted (AIPW).
4. Estimators that match on covariates (Nearest Neighbour Matching (NNM)).
5. Estimators that match on predicted probabilities of treatment (Propensity Score Matching PSM).

In this paper, we present results for the IPW and PSM estimators on a number of outcome variables. We consider two forms of treatment: (i) having a card versus not having a card and (ii) having a card *and using it* versus having a card *and not using it*. For reasons of economy, we show the results for only those outcomes for which the ATE was significantly different from zero.

[9] ATT has been criticised because it encompasses the entire population including units who would never be eligible for treatment. See Woolridge (2010).

[10] Intuitively, the CI assumption says only the covariates affect both the treatment and the potential outcomes.

[11] So, in our case, if there were APL households in the sample who, by definition, were not eligible for a RSBY card, the overlap assumption would be violated.

Table 15: Treatment Effects on Outcome Variables Arising from Having a RSBY Card and Using it Against Having a RSBY Card and not Using it

Outcome	Estimator	
	ATE: IPW	**ATE:PSM**
Able to generate income from trade and Service	0.09	0.10
	(3.09)	(2.53)
Wishes to start a new life or to expand an existing economic activity	0.11	0.10
	(3.11)	(2.37)
Member of a user group in the village	0.11	0.09
	(3.27)	(2.36)
Got support from village/neighbourhood	-0.06	-0.06
	(1.60)	(1.52)
Importance of village for local government	-0.1	-0.09
	(1.86)	(1.50)
Central government has reasonable understanding of your situation	0.1	0.11
	(4.23)	(3.44)

Table 16: Treatment Effects on Outcome Variables Arising from Having a RSBY Card Against Not Having a RSBY Card: Uttar Pradesh

Outcome	Estimator	
	ATE: IPW	**ATE:PSM**
Central government has reasonable understanding of your situation	0.06	0.08
	(1.78)	(1.96)
Has the government attempted to address your needs in the past 5 years	0.07	0.07
	(1.70)	(1.81)

Table 17: Treatment Effects on Outcome Variables Arising from Having a RSBY Card Against Not Having a RSBY Card: Maharashtra

Outcome	Estimator	
	ATE: IPW	**ATE:PSM**
Able to generate income from trade and Service	0.04	0.05
	(1.63)	(2.07)
Member of a user group in the village	0.17	0.17
	(4.83)	(3.94)
Did you raise your voice in public events	0.08	0.07
	(2.21)	(1.67)
Central government has reasonable understanding of your situation	0.06	0.11
	(1.78)	(3.44)
Has the government attempted to address your needs in the past 5 years	0.07	
	(1.70)	

Table 15 shows the treatment effects for using a card using the IPW and PSM estimators. Using a card (as opposed to having a card *and not using it*) had a significant effect on (i) the ability to generate income from trade and service and (ii) raising the desire to start a new life or expand existing activity. In addition, it had several social effects: it encouraged households to join user groups in the village and, from a political perspective, it generated the feeling that the central government understood people's needs.

Table 16 (UP) and Table 17 (Maharashtra) show the treatment effects for having a card using the IPW and PSM estimators. Having a card (as opposed to *not* having a card) had a significant effect in UP in generating a greater sense that the central government understood people's needs and that it had attempted to address these needs. The gains in UP among the RSBY card holders were purely political. However, in Maharashtra the gains from having a card extended to ability raise income from trade and service, becoming a member of a user group in the village, and having the confidence to speak up in public.

7. Conclusions

A popular theme in the literature on policy making is the idea of 'capture'. When industry is regulated, it attempts to "capture" the regulator to make him act in its interest. Lobbyists attempt to capture legislators and pay them to ask questions on their behalf. In a similar vein, desirable policy initiatives are sought to be captured by influential groups. The RSBY card is no exception.

The RSBY poses two barriers: the barriers associated with getting a card even though one might be formally entitled to one and the barriers associated with using a card even though one might be in possession of one. As we have seen, getting a card in UP is essentially barrier free except on grounds of bureaucratic penetration. However, in Maharashtra, those higher up the income ladder, and those in higher social groups were significantly more likely to have a card than those on the lowest rung economically and socially. The same is true of usage. Having got a card, it was the better off sections of card holders who were more likely to use them.

A possibility that this paper does not consider is that of "adverse selection". This would suggest that it is precisely the "bad health risk" households - those households which had, or anticipated having, a pre-existing illness in their midst and, therefore, by extension had, or anticipated, a bad non-health related outcome[12] - that would take out RSBY cards while "healthy" households would not bother. On this "lemons" versus "plums" interpretation[13] we would expect to see card holders to have worse non-health related outcomes than non-card holders simply because RSBY cards would be relatively more attractive to bad risk, compared to low risk, households. So RSBY cards would be associated with bad outcomes, not because holding a RSBY card *caused* a bad outcome but because households at risk of bad outcomes, through actual or anticipated ill-health, were *attracted* to RSBY cards.

[12] Like loss of income or output.
[13] See Akerlof (1970).

References

Akerlof, George A. (1970). "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism". *Quarterly Journal of Economics* **84** (3): 488–500.

Das Jishnu and Jessica Leino (2011) 'Evaluating the RSBY : Lessons from a Experimental Information Campaign' *Economic and Political Weekly*, August 6, 2011, Vol. XLVI, No 32, pp. 85-93.

Rajasekhar D, Erlend Berg, Maitreesh Ghatak, B Manjula and Sanchari Roy (2011) 'Implementing Health Insurance: The Rollout of Rashtriya Swasthya Bima Yojana in Karnataka' *Economic and Political Weekly*, May 14, 2011, Vol XLVI, No 20, pp. 56-63.

Rathi Prateek, Arnab Mukherjee and Gita Sen (2012) Rashtriya Swasthya Bima Yojana: Evaluating Utilisation, Roll-out and Perceptions in Amaravati District, Maharashtra', *Economic and Political Weekly*, September 29, 2012, Vol. XLVII, No 39, pp. 57-64.

Woolridge, Jeffery, M. (2010), *Econometric Analysis of Cross Section and Panel Data*, Cambridge Mass: MIT Press.

Appendix on BPL Calculations

1. **BPL survey for 9th Plan (1997-2002) (Rural)**. Annual family income to be less than Rs. 20,000 and the families should not have more than 2 hectares of land or TV or Fridge. The number of rural BPL families was 6.5 lakh during the 9th Plan. The survey based on these criteria was again carried out in 2002 and the total number of 3.87 lakh families was identified. This figure was in force till September, 2006.
2. **BPL for 10th Plan (2002-07) (Rural)** This survey is based on the degree of deprivation in respect of 13 parameters (with scores from 0-4) – land holding, type of house, clothing, food security, sanitation, consumer durables, literacy status, labour force, means of livelihood, status of children, type of indebtedness, reasons for migrations etc. The Planning Commission fixed an upper limit of 3.26 lakh for rural BPL families on the basis of simple survey. Accordingly families having less than 15 marks out of maximum 52 marks have been classified as BPL and their number works out to 3.18 lakh. The survey was carried out in 2002 and thereafter but could not be finalised due to stay by the SC. The stay was vacated in February, 2006 and this survey was finalised and adopted in September, 2006. This survey would form the basis for benefits under GoI schemes. The state government is free to adopt any criteria/survey for the state level schemes.
3. **10th Plan BPL Survey for Urban Families**. This survey was based on degree of deprivation in respect of 7 parameters – roof, floor, water, sanitation, education level, type of employment & status of children in a house. A total of 1.25 lakh upper families were identified as BPL in urban area in 2004. It is under implementation since then.
4. **Kerala Government.** Most of the state governments followed the 13 and 7 parameters definition for identifying the BPL families during the current 10th Plan. Kerala's is one of the few state governments which have formulated its own criteria. There are nine parameters and if the family does not have access to 4 or more parameters than it is classified as BPL. The 9 parameters for urban areas are – No land/Less than 5 cents of land, No house/dilapidated house, No sanitation latrine, Family without colour TV, No regular employed person in the family, No access to safe drinking water, Women headed house hold/Presence of widow divorcee, Socially disadvantaged groups SC/ST & Mentally retarded/disabled member in the family. The nine parameters for rural are - No land/Less than 5 cents of land, No house/dilapidated house, No sanitation latrine, Family with an illiterate adult member, No regular employed person in the family, No access to safe drinking water, Women headed house hold/Presence of widow divorcee, Socially disadvantaged groups SC/ST & Mentally retarded/disabled member in the family.
5. **Haryana Government.** The BPL survey was carried out as per the GoI guidelines in Haryana and it was based on 13 parameters. The Government has recently dis-carded it and adopted new 5 parameters based survey. The 5 points are – land, house, household goods, literacy level and means of livelihood /standard of living. The survey is to be carried out by Ex-serviceman who would be paid Rs. 4 per family.
6. **Maharashtra Government.** The Maharashtra Government has also decided to conduct fresh BPL survey. About 46 lakh BPL families were identified on the basis of 13 point criteria. There was lot of resentment and a total of 10.56 lakh appeals were filed against the survey. In view of this they have decided to discard the survey and conduct fresh survey.